



Mgmt: NAI Emory Hill Real Estate Group
10010 Junction Dr, Annapolis Junction, MD

Project: FADRS[®] (pronounced faders)
Smart Grid Technology Showcase utilizing
patented Artificial Intelligence, Prediction
& Human Centric Technology.

Contractors:
Consolidated Energy Design (Patent Holders)
Third Party BAS Company (Fab/Installation)

Funding Agency:
Maryland Energy Administration (MEA)
Grant 2015-05-517S5
“Novel Demand Response & Advanced
Energy Management System”

PRE Conditions: 2 Story Tenant Occupied Office Building; 108,000 square feet
5 Major Roof Top Package Cooling Units with 83 VAV boxes with 2 stage electric heat
Typical Building Automation System (BAS) for space heating/cooling.

POST Conditions: **CONTROLS ONLY – No New HVAC Equipment or Lighting Retrofit**

- FADRS[®] Painless Demand Response[®]
- FADRS[®] Enhanced Building Automation System
- ~5 Power Quality Sub Meters (1 for each Roof Top Unit) + KYZ Pulse meter

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**ALL FADRS[™] programming either overlaid on top of existing BAS or reporting to existing BAS.
FULLY AUTOMATED control (No Human Intervention). Bidirectional control in real time.**

Completion Date: FADRS[®] Enhanced Building Automation System Performance:
March 2016 (HVAC Energy Savings from April 2016 onward)

Year Three Normalized Baseline (NBL) for HVAC = 2,399,715 KWh (\$267,048)
AI Achieved Maximum HVAC Energy Savings by end of Year 3
887,120 KWh (\$ 99,005) 37%

FADRS[®] Painless Demand Response[®] Performance:
(8/2/18 Summer Capacity Test)
163 KW down to 102 KW (61.1 KW Reduced) = **37.4%** DR Reduction

IPKeys is the Curtailment Service Provider for this project and their **PJM formula**
Calculations are found on reverse side.



EXHIBIT A

ELECTRIC SAVINGS AT MEA PROJECTS AFTER 3 YEARS

Building 10010

	KWh (NBL)	Dollars	Dollars/SF (81,000 SF)	KWh W/FADRS®	Dollars W/FADRS®	Dollars/SF (81,000 SF)	KWh Saved	\$ SAVED	% SAVED
YEAR ONE 4/16-3/17	2,334,318	\$ 276,305	\$ 2.56	1,583,788	\$ 187,468	\$ 1.74	750,530	\$ 88,588	32.2%
YEAR TWO 4/17-3/18	2,293,173	\$ 277,111	\$ 2.57	1,476,565	\$ 178,431	\$ 1.65	816,608	\$ 96,597	35.6%
YEAR THREE 4/18-3/19	2,399,715	\$ 267,048	\$ 2.47	1,533,246	\$ 170,625	\$ 1.58	887,120	\$ 99,005	37.0%
Achieved energy savings of 37% at the end of Year 3 because our patented FADRS® AI system learned how to run the building more efficiently over time.						TOTAL SAVED OVER 3 YEARS	2,454,258	\$ 284,190	

DEMAND RESPONSE TEST

PJM Customer Usage Review

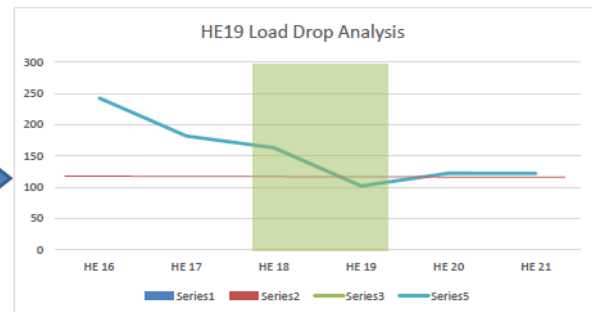
Customer	Junction	Test Results
Utility Acct #	185.12	Pass
Nom ICAP	125	Customer required to reduce usage to or below this level.
FSL	BGE	
Zone	1.089	
Cap Loss Factor	321.24	
PLC		

TEST
2018-08-02

August 2, 2018
18:00:00 PM Test Event Start
19:00 PM Test Event End

HE 1	118.4
HE 2	113.4
HE 3	117.5
HE 4	116.3
HE 5	118.1
HE 6	196.6
HE 7	182.6
HE 8	189.5
HE 9	201.7
HE 10	205.2
HE 11	244.7
HE 12	251.1
HE 13	254.4

Target FSL 125kW



FSL ANALYSIS			
		HE 19	Average Across Event
HE 14	268.0		
HE 15	281.4	Nom ICAP	185.12
HE 16	242.6	Comm ICAP	185.12
HE 17	181.6	FSL (MW)	125
HE 18	163.1	Metered Load	102.03
HE 19	102.0	PLC (MW)	321.24
HE 20	122.5	DR Factor	0.957
HE 21	121.9	FPR	1.0892
HE 22	123.0	Cap Loss Factor	1.09
HE 23	124.1	Reduction ICAP MW	210.12956
HE 24	114.0		210.13

Tested HE19 kW Value	102.0
Load Reduction	61.1
Percentage of Reduction	37%

Reduction (MW) = PLC - (Metered Load * Capacity Loss Factor)

Shortfall ICAP = Committed ICAP - Reduction MW

Shortfall UCAP = Shortfall ICAP * DR Factor * Forecast Pool Requirement

Shortfall ICAP	-25.0096	114%
Shortfall UCAP	-27.2404	Pass